REMARKS

Claims 1-6 and 9-20 are pending in the subject application with Claims 1 and 9 in independent form. No claims are amended, withdrawn or cancelled in the present Response. Claims 7 and 8 were previously cancelled.

Claims 1-6 and 9-20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the four-way combination of U.S. Pat. No. 4,515,884 to Field et al. (hereinafter "Field et al.") in view of U.S. Pat. No. 5,846,643 to Badesha et al. (hereinafter "Badesha et al.") and/or U.S. Pat. No. 4,763,158 to Schlueter (hereinafter "Schlueter") and also U.S. Pat. Appl. Publ. No. 2002/0146575 to Shudo et al. (hereinafter "Shudo et al.").

As set forth in the Examiner's first Office Action and the Applicants' prior Response, the Examiner contends that Field et al. discloses a fuser member comprising a layer of vulcanized silicone rubber containing thermoconductive particles. However, the Examiner admits that the host matrix of Field et al. is a condensation curable silicone rubber, as opposed to the presently claimed hydrosilylation-curable silicone. To address this deficiency of Field et al., the Examiner relies on Badesha et al. and/or Schlueter to illustrate that hydrosilylation-curable silicone rubbers are known to be used in a similar capacity, i.e., are generally regarded as being equivalent hosts into which conductive particles are incorporated. Finally, the Examiner relies on Shudo et al., and contends that Shudo et al. confirms that it is known to incorporate cerium oxide in fuser members.

In the Applicants' previous Response, the Applicants pointed out a clear teaching in Schlueter which unambiguously teaches away from the inclusion of the instantly claimed

materials, particularly alumina and iron oxide, in fuser members. In the Final Office Action, the Examiner has stated that he disagrees with the Applicants' assertion that Schlueter teaches away from the inclusion of such materials in fuser members (see page 2 of the instant Office Action). In particular, the Examiner contends that "Schlueter does not discourage the incorporation of any conductive materials but, rather, those that have high surface energies." The Applicants respectfully note that the Applicants did not assert that Schlueter teaches away from any conductive materials; rather, the Applicants focused on the specifically enumerated conductive materials in Schuleter. In fact, Schlueter states, in column 3, lines 23-53:

> "Typically fuser members such as the fuser roll have a thin elastomeric surface layer applied to a metallic cylindrical sleeve such as aluminum which is heated by a heating element disposed in the center of the aluminum sleeve. Since the fusing temperature is of the order of about 400° F, the design of the fuser roll is such as to minimize power requirements to maintain the fusing temperature at the surface of the elastomer layer. Accordingly, the elastomer layer is generally designed to be as thin as possible and typically has substantial quantities of thermally conductive filler such as alumina, iron oxide and others added thereto. The thermally conductive filler increases the thermal conductivity of the elastomer layer thereby minimizing the thermal barrier to heat radiating from inside the fuser member to the outermost layer of the elastomer and reducing the power requirements. While the fillers such as alumina and silica are effective in increasing thermal conductivity of the elastomer layer since these particulate materials are relatively high surface energy materials when incorporated in the elastomer layer, the release properties of the elastomer layer are gradually degraded with continuing use. As a result, the hot offset temperature is reduced and the fusing latitude may also be reduced with time.

(emphasis added). Although it is true that Schlueter teaches away from the incorporation of conductive materials, it is also true that Schlueter expressly recites alumina and iron oxide as conductive materials that should be excluded from fuser members, and, notably, each of these materials is expressly claimed in the subject application. As such, it is improper for the

Examiner to generalize the express teaching away in Schlueter with respect to alumina and iron oxide as merely a teaching away of materials having high surface energies.

Ironically, even though the Examiner stated that the Examiner disagrees with the Applicants assertion that Schlueter expressly teaches away from the incorporation of iron oxide and alumina in fuser members, the Examiner also states that "[a]s to the notion that Schlueter teaches away from the addition of iron oxide and alumina, the Examiner acknowledges this fact but disagrees with any assertion that they are to be avoided only in hydrosilylation-cured systems." (emphasis added) (see page 3 of the instant Office Action). It is clear that the Examiner continues to misunderstand the Applicants' position. The Applicants focused on the express teaching away in Schlueter relative to hydrosilylation-curable silicone compositions because such hydrosilylation-curable silicone compositions are claimed in the subject application. Moreover, it is wholly irrelevant whether the express teaching away present in Schlueter relates only to hydrosilylation-curable silicone systems or all types of silicone systems. This distinction is purely semantic, and does not detract from the fact that regardless of whether express teaching away present in Schlueter relates only to hydrosilylation-curable silicone systems or all types of silicone systems, it is clearly undeniable that Schlueter expressly teaches away from the invention claimed in the subject application, as the Examiner has even admitted.

The Examiner is respectfully reminded that "[a] reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path

that was taken by the applicant." *In re Gurley,* 27 F.3d 551, 553 (Fed.Cir.1994). As the Examiner is aware, "[a] prior art reference that 'teaches away' from the claimed invention is a significant factor to be considered in determining obviousness." MPEP § 2141.02. Clearly, based on the express teaching of the deleterious effects of iron oxide and alumina in fuser members present in Schlueter, one of skill in the art would be discouraged from including such materials in fuser members. Therefore, upon a full reading of Schuleter, there is no reason whatsoever that one of skill in the art would take the hydrosilylation-curable silicone rubber composition disclosed therein and combine it with thermally conductive fillers in view of the fact that Schlueter expressly teaches that such thermally conductive fillers impart the resulting elastomeric layer with undesirable properties.

Finally, with respect to the express teaching away present in Schlueter, the Examiner contends that Field et al. is unconcerned with the deleterious effects of alumina and iron oxide. However, Applicants note that Field et al. and Schlueter are each assigned to the same entity (namely, Xerox Corporation), and Field et al. antedates Schlueter by nearly five years (based on the respective filing dates). Thus, it is not surprising that Field et al. is unconcerned with the teaching away present in Schlueter, because Schlueter was not available for the inventors of Field et al. at the time of the invention of Field et al. Over time, innovation improves products and ameliorates deleterious effects of prior art; as such, it is improper to rely on prior art which antedates an improvement patent to show that others are not concerned with the teaching away of the improvement patent (because, at the time of invention of the prior art, such knowledge may not have been readily available or widely known). As an exemplary example of an

extension of the Examiner's logic, imagine a patent issued for a braking system in 1960. Then, a patent issued in 1985 describing the inherent problems with prior art braking systems and teaching away from such systems. An Examiner cannot rely on the 1960 patent to show that others are not concerned with the teaching away present in the 1985 patent. The same is true in the instant case, i.e., it is improper for the Examiner to rely on prior art which antedates the teaching away of Schlueter to show that others are unconcerned with the express teaching away of Schlueter.

The Applicants also note that, in his rejection, the Examiner relies on Schlueter and/or Badesha et al. However, in the instant Office Action, the Examiner failed to address the teachings of Badesha et al. in any way whatsoever. Moreover, the Applicants note that if the Examiner relies on Badesha et al., rather than Schlueter (in an attempt to obviate the express teaching away present in Schlueter), the teaching away present in Schlueter cannot be disregarded. In fact, the Applicants respectfully point out that the background section of Badesha et al. incorporates Schlueter by reference in its entirely (see column 2, line 44-46 of Badesha et al.). As such, the teaching away present in the background of Schlueter, which is described above, is equally applicable to Badesha et al. Therefore, even if the Examiner were to rely on Badesha et al. rather than Schlueter, there is still no reason whatsoever that one of skill in the art would take the hydrosilylation-curable silicone rubber composition disclosed therein and combine it with thermally conductive fillers in view of the fact that Badesha et al. incorporates the portion of Schlueter which expressly teaches that such thermally conductive fillers impart the resulting elastomeric layer with undesirable properties.

The Applicants also note that, notwithstanding the above and contrary to the Examiner's contentions, condensation-curable silicones (e.g. condensation type room-temperature vulcanization (RTV) silicones) and addition-curable silicones are not equivalent hosts, and different methods of producing each respective silicone and the physical properties obtained therefrom often differ. For example, it is generally known that RTV silicones require a longer period of time for curing, and may also require additional processing steps for removal of by-products (see, for example, paragraph [0003] of U.S. Publ. Pat. Appl. No. 2002/0037963).

Despite the express teaching away of the claimed invention in the subject application by Schlueter, in the Applicants' previous Response, the Applicants also pointed out the unexpected results obtained via the subject invention, as illustrated in the Examples of the subject application relative to the Comparative Examples of the subject application. In particular, to summarize, Table 1b of the subject application sets forth 6 Comparative Examples. Comparative Examples 2, 4 and 6 do not include iron oxide micropowder, i.e., claimed Component (C) of the subject application. Comparative Examples 3 and 4 do not include cerium oxide micropowder, cerium hydroxide micropowder, or cerium-containing heteroorganosilane, i.e., claimed Component (D) of the subject application. Thus, Comparative Example 2 includes cerium oxide micropowder but not iron oxide micropowder, and Comparative Example 3 includes iron oxide micropowder but not cerium oxide micropowder. Examples 1-5 are identical to these Comparative Examples with the exception that Examples 1-5 include both of claimed Components (C) and (D). Tables 5 and 6 set forth the adherence of the compositions formed in each respective Example and Comparative Example to aluminum

panel and to fluororesin, respectively. Notably, the compositions of Examples 1-5, which include both of claimed Components (C) and (D), had excellent adherence to both aluminum and fluororesin, even after 480 hours (see Tables 5 and 6). Conversely, the compositions of Comparative Examples 2, 3, 4 and 6, which do not include both of claimed Components (C) and (D), had an adherence to aluminum panel which was undesirable initially, let alone after 480 hours, as measured by the cohesive failure ratio (see Table 5). Similarly, the compositions of these Comparative Examples had an undesirable adherence to fluororesin after 480 hours, with Comparative Examples 2, 4 and 6 having an undesirable adherence to fluororesin initially as well (see Table 6).

The Examiner contends that, because of the broad ranges and magnitudes encompassed by the rating system utilized by the Examples of the subject application (with respect to the respective cohesive failure ratio rating system in which o: $\geq 90\%$, Δ: 50-89%, and χ: $\leq 49\%$), it is impossible to decipher the performance differences between the Examples and the Comparative Examples of the subject application. To this end, merely for the purposes of conveying the performance differences between the Examples and the Comparative Examples of the subject application, the Applicants submit herewith Tables 5 and 6 of the subject application with quantitative values for the cohesive failure ratio, which more accurately illustrates the unexpected results obtained via the subject invention.

Table 5:

Examples	Adherence to aluminum panel (cohesive failure ratio)				
	initial	after 170 hours	after 220 hours	after 310 hours	after 480 hours
Example 1	100	100	100	100	100
Example 2	100	100	100	100	100
Example 3	100	100	100	100	100
Example 4	100	100	100	100	100
Example 5	100	100	100	100	100
Comp. Ex. 1	100	77	83	66	73
Comp. Ex. 2	82	75	63	42	33
Comp. Ex. 3	87	95	82	75	65
Comp. Ex. 4	75	73	63	35	20
Comp. Ex. 5	80	75	58	35	15
Comp. Ex. 6	88	93	65	43	33

Table 6:

Examples	Adherence to fluororesin (cohesive failure ratio)				
	initial	after 170 hours	after 220 hours	after 310 hours	after 480 hours
Example 1	100	100	100	100	100
Example 2	100	100	100	100	100
Example 3	100	100	100	100	100
Example 4	100	100	100	100	100
Example 5	100	100	100	100	100
Comp. Ex. 1	100	75	60	38	15
Comp. Ex. 2	83	65	40	25	0
Comp. Ex. 3	100	100	100	85	75
Comp. Ex. 4	85	40	15	0	0
Comp. Ex. 5	10	20	55	60	0
Comp. Ex. 6	75	100	40	15	0

This quantitative data set forth above in Tables 5 and 6 more accurately and clearly illustrates the unexpected results obtained via the subject invention. Notably, the thermoconductive addition-curable silicone compositions of Examples 1-5 had excellent adhesion to both

aluminum panel and fluororesin, both initially and after 480 hours (exhibiting a cohesive failure ratio of 100%). Conversely, the thermoconductive addition-curable silicone composition of Comparative Example 3, which was identified as being the most relevant Comparative Example by the Examiner, had a cohesive failure ratio of 65% to aluminum panel after 480 hours. This is a substantial deterioration over time relative to all of Examples 1-5, which did not deteriorate whatsoever over time. The other Comparative Examples, namely Comparative Examples 1, 2, 4 and 5, had even greater deterioration, with a cohesive failure ratio to fluororesin of 0 after 480 hours. A difference of 100% and 0% is significant.

In view of the data set forth above in Tables 5 and 6, the Applicants respectfully submit that, upon a full reading of Field et al. in view of Badesha et al. and/or Schlueter and also Shudo et al., one of skill in the art would have no reason whatsoever to expect the excellent physical properties obtained from compositions including claimed Components (A)-(F), especially in view of the fact that utilizing iron oxide micropowder but not cerium oxide micropowder, or vice versa, resulted in undesirable properties (as exemplified by Comparative Examples 2 and 3 relative to Examples 1-5 in the subject application).

In view of the foregoing, the Applicants respectfully submit that independent claims 1 and 9, as well as claims 2-6 and 10-20 which depend from independent claims 1 and 9, respectively, are both novel and non-obvious over the prior art, including over Field et al. Badesha et al., Schlueter and Shudo et al., either individually or in combination. As such, the Applicants submit that the claims are in condition for allowance, and such allowance is respectfully requested.

This Amendment is submitted along with the proper fee for a three-month extension of time; thus, it is believed that no additional fees are due. However, if necessary, the Commissioner is authorized to charge Deposit Account No. 08-2789 in the name of Howard & Howard Attorneys PLLC for any additional fees or to credit the account for any overpayment.

Respectfully submitted,
HOWARD & HOWARD ATTORNEYS PLLC

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Date

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